

27MnCrB5-2 All

General Information

WR-Steel®

(Wear resistant) WR-steel, stands for wear-resistant steel. This group of steel includes a broad range of grades with a wide range of hardness levels 350 – 650 HV, dimensions and steel grades designed to give you a wear-resistant advantage when making product exposed to a high degree of wear and where service life is important. WR-steels are characterised by consistent properties and cost effectiveness due to optimized alloy content for different end applications.

For additional Heat Treatment Data, please visit the Heat Treatment Guide.

Similar designations

SB9660 - 27MnCrB5-2, SB9652 - 28MnCrB5-2, SB9667 - 29MnCrB5-2, BCM 311

Chemical composition

| Variant | Cast | Weldability | | C % | Si % | Mn % | P % | S % | Cr % | Ti % | Al % | B % |
|---------------------------------|------|-------------------------|-----|------|------|------|-------|-------|------|-------|-------|--------|
| SB27M12CB (SB9660) | CC | CEV 0.58 _{max} | Mn | 0.25 | 0.15 | 1.00 | - | - | 0.30 | - | - | 0.0010 |
| | | Pcm 0.39 _{max} | Max | 0.30 | 0.35 | 1.40 | 0.035 | 0.035 | 0.60 | - | 0.040 | 0.0060 |
| SB28M12CB (SB9652) | CC | CEV 0.6 _{max} | Mn | 0.24 | 0.10 | 1.10 | - | - | 0.30 | 0.020 | - | 0.0008 |
| | | Pcm 0.4 _{max} | Max | 0.30 | 0.40 | 1.30 | 0.035 | 0.035 | 0.60 | 0.050 | - | 0.0050 |
| SB29M13CB (SB9667) | CC | CEV 0.62 _{max} | Mn | 0.28 | 0.15 | 1.10 | - | - | 0.25 | - | - | 0.0020 |
| | | Pcm 0.41 _{max} | Max | 0.33 | 0.40 | 1.50 | 0.030 | 0.030 | 0.60 | - | - | 0.0050 |
| 5464 (BCM311) | CC | CEV 0.58 _{max} | Mn | 0.24 | - | 1.10 | - | - | 0.30 | - | - | 0.0008 |
| | | Pcm 0.39 _{max} | Max | 0.30 | 0.40 | 1.40 | 0.025 | 0.035 | 0.60 | - | - | 0.0050 |
| 27MnCrB5-2 EN10083-3:2006 (ref) | Std | CEV 0.58 _{max} | Mn | 0.24 | - | 1.10 | - | - | 0.30 | - | - | 0.0008 |
| | | Pcm 0.39 _{max} | Max | 0.30 | 0.40 | 1.40 | 0.025 | 0.035 | 0.60 | - | - | 0.0050 |

Mechanical Properties

| Variant | Condition | Format | Dimension [mm] | Yield strength min [MPa] | Tensile strength [MPa] | Elongation A ₅ [%] | Reduction of area Z _{min} [%] | Hardness | Impact (ISO-V) strength _{min} |
|--------------------|-----------|-----------|----------------|--------------------------|------------------------|-------------------------------|--|-----------|--|
| SB28M12CB (SB9652) | +AR | Flat bar | 15 < 60 | - | - | - | - | < 240 HB | - |
| 5464 (BCM311) | +AR | Round bar | < 90 | - | - | - | - | < 250 HB | - |
| | +QW | Round bar | 70 typical | 850 | 1050-1300 | 10 | 45 | 33-41 HRC | 20 °C 30 J (long) |
| | +QT | Round bar | 70 typical | 700 | 800-1000 | 14 | 55 | 22-31 HRC | 20 °C 70 J (long) |

*R_{p0.2} * R_{eh}, ** R_{el}*

BCM 311 +QT tempered at 500°C

Transformation temperatures

| | Temperature °C |
|-----|----------------|
| MS | 382 |
| AC1 | 720 |
| AC3 | 786 |

Heat treatment recommendations

| Treatment | Condition | Temperature cycle | Cooling/quenching |
|--------------------|-----------|-------------------|-------------------|
| Quench & Tempering | +QT | 880 - 910 °C | in water or oil |

Hardenability

Other properties (typical values)

| Youngs module (GPa) | Poisson's ratio (-) | Shear module (GPa) | Density (kg/m ³) |
|-------------------------------|--|--|--|
| 210 | 0.3 | 80 | 7800 |
| Average CTE 20-300°C (µm/m°C) | Specific heat capacity 50/100°C (J/kg°C) | Thermal conductivity Ambient temperature (W/m°C) | Electrical resistivity Ambient temperature (µΩm) |
| 12 | 460 - 480 | 40 - 45 | 0.20 - 0.25 |

Contact us

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For more detailed information please visit <http://www.ovako.com/en/Contact-Ovako/>

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